

Lesson 39 - Food Supplements

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1. Presenting The Universal Problem

1.1 Man Is Confused

Rod sat in a chair across the room rubbing his knees. From time to time his body would jerk and he would squirm in his chair as if ill at ease or uncomfortable for some reason or other. He recounted a sorry tale of how he had sought relief from many physicians and medical specialists for the constant pain which had limited his productiveness both socially and in the economic world from his early childhood and which was now causing him to quit his job as an accountant in a multi-national corporation because he could no longer hold a pen or pencil between his fingers.

The young man, just past thirty, recited an array of drugs and supplements which he had dutifully swallowed per the instructions given him. The drugging had begun at the age of two years when he had "come down" with a muscular rheumatism. It had continued unabated to the present day. Even as he spoke, Rod pulled from his pocket the latest prescription, deadly prednisone, and a bottle of a well known and highly advertised multiple vitamin-mineral supplement. Pitifully, Rod cried, "Can you help me? I have nowhere else to go!"

Unfortunately, Rod's story is only too common in today's pseudoworld, a world where humankind has been taught to live in a fantasyland of unreality, to believe that humankind can go on indefinitely defying the laws of living structure, that we can eat what, when and how we please, that we can continue to abuse our bodies, that we can take all manner of vile liquids, pills and potions into our bodies, that we can inhale foul air and make all manner of mistakes and not have to come face to face with the realities of our organic existence if we only have recourse to the supplement products offered, for a price, by the huge industrial giants of the times in which we live.

1.2 World Health Statistics

As a result of this kind of foolishness, an insidious creeping debilitating force is at work among the peoples of the world, and especially in this country, with many being troubled by the sickness they see around them and their own eroding well-being, but not knowing what to do or where to turn for help.

The World Health Chart for 1968 shows the average age of males at death in the United States is 66.6 and females 74.1; 25th place for men and 14th for women, respectively among all the nations in the world. In recent years we have dropped from an earlier and now out-dated rating of 15th in spite of the fact that the supplement- and drug-related businesses have skyrocketed in sales and dollar volume. The

people have lost confidence in the medical profession.

1.3 Philosophy of Modern Medical Practice

The whole history of medicine is one of palliation and stimulation. If you are sick, you take the proffered pill and make the hurt go away. Are you tired, unable to cope? No matter, just take this vitamin, that herb, a little wine or smoke the weed and swallow a packet of man-made inorganic or fancy synthetically chelated minerals and your body's vitality battery will be recharged, your mood elevated, your cares soothed away and all problems solved; the sun will shine in the sky and the, world will lie at your feet. *It is too good to be true!*

We are a sick nation and getting sicker with every passing moment. We have not learned that, only nature can heal, that health will have none of forcing, but must be maintained and built through wholesome eating and living.

1.4 Supplementation

Dr. Elizabeth well remembers that when she was a child her mother kept a veritable cupboardful of patent medicines: there was cod liver oil in the form of Scott's Emulsion, Dr. Lydia Pinkam's Tonic for Women; and others. There was always a tin of aspirin tablets on hand to relieve the headache as well as a special box of baking soda to soothe acid-troubled stomachs.

You see, at that time, vitamins were a totally new and unexplored area, but the family always had recourse to Grandma's green "tizzy," a green drink made from selected herbs which grew in the garden, guaranteed, of course, to "cure" any ailment.

Dr. Robert's childhood and early years were no different, even though his father was a medical doctor, a specialist in anaesthesiology at one of the large hospitals in the East. The "remedies," of course, had different names, fancy medical names, but the effects were the same: palliation and stimulation.

Now, we live in modern times. During the past fifty or so years, patent medicines have, for the most part, disappeared from the pharmacist's shelves and the home cupboards have been replaced by a collection of bottles of all kinds containing all manner of supplements: vitamins, enzymes and minerals especially, but also others. The drugs of our father's time have also largely disappeared only to be replaced by newer and more potent drugs because the others failed to fulfill the promises made for them—as these will also fail.

"Health" food stores are now found in almost every major and minor shopping center from Maine to California and in countries overseas, all offering all manner of magic ways to restore radiant health to a deeply troubled public eager to buy their offerings. We know many elderly people living on Social Security who trudge wearily into health food stores paying out huge sums for pills and potions which they firmly believe will bring them youthful zest and vigor. Yet all the while they continue their life-destroying practices and drag through the days of their lives ever hopeful that the "magic" of pills will give them back the youth of their childhood.

1.5 Is Supplementation the Answer?

Is it true that because the vast majority of people now live in cities where admittedly the quality of the food is something less than ideal, that we must supplement our diet in order to have any hope of achieving and maintaining a reasonable level of health? Rod, the young man whom we met at the opening of this lesson, was advised by the last specialist he had consulted to drink nothing but pure mineral water so that he would be assured of getting all the minerals his system required and, also, to drink at least one pint of milk every day and to take his prescribed mineral supplements in order to maximize his calcium and other mineral intake.

In this day of known soil mineral deficiencies, should we supplement the mineral content of our foods in order to be sure that we receive a sufficiency of these important nutrients? Do herbs offer a panacea for all of mankind's ailments as many herbalists contend? After all, it is well known that mankind has historically used herbs since time immemorial and, therefore, *ipso facto*, they should be an important part of our armentarium so that our systems will be well fortified against possible "attacks" by germ, fungus and/or virus. In other words, through supplementation we can gird our loins, as it were, to do battle against a formidable foe.

Some scientists contend that cooked food is easier to digest than uncooked, that man has cooked his food for so long a time that his digestive organs have become adapted to eating cooked foods, that it is no longer possible for humankind to subsist totally on uncooked food, even though he may once have done so, that his digestive organs have changed over the centuries to accept cooked food and reject raw fruits and vegetable foods as indigestible. We know this is *not* true.

These "scientists" recommend mega-vitamin and mineral supplementation as a means of ensuring a more youthful resurgence of energy and higher level of health. Do we dare postulate the question, "Is vitamin dosing another gimmick, one perhaps that ensures an acceleration of energy outflow rather than the longed-for extender of youth?"

Are there certain commonly accepted but harmful practices we should all avoid if we would either restore a state of diminished health to a higher level or retain the good health we now have? We believe there are and, hopefully, we will learn some of these in this lesson. Natural hygienists contend that the very structure and function of the body, its physiological and biological methods and practices, its capabilities and limitations, dictate certain unchanging principles which should and, indeed, must dictate how and in what manner the human organism must be nourished to remain in superb health.

1.6 Unchanging Principles Govern Life

Hygienists unequivocally hold that a general law under-girds life, one derived from physiology and biology and that we cannot escape the rule of law either in our eating or in our living, if we would retain our health. If we would escape the degenerative diseases that plague the vast majority of people, we must learn not only what we *should do* but also what we *must not do*. When the laws of life are ignored and possibly defied, due accounting will be required of us and, more often than not, such accounting will result in the rapid or more subtle erosion of health according to the inherited constitution and the extensiveness and intensiveness of the infractions of physiological and biological order.

In this lesson we will expand our knowledge in this respect. When we fully understand the truism that we, like all living things, are a part of the universe, one with all life and governed by exact laws, we will cease chasing after "cures," we will stop popping our pills and having recourse to vile substances; we will forego our stimulating habits and practices and start living hygienically, in accord with body design. As was said long ago by one Thomas Campanella, "The Laws of Nature proclaim themselves and are their own avenger." And let us proclaim with equal truth that the Laws of Nature, when obeyed, will reward us most magnificently with all the many faces of joy.

2. Vitamins

2.1 A Statement

In this lesson we will not concern ourselves with specific functions of particular vitamins, nor will we identify precise sources for obtaining this or that vitamin, nor with minimum daily requirements per se as set forth by governmental agencies, nor with similar data. There are any number of books and pamphlets setting forth such information and we refer our students to them. Our concern here will rather be centered on vitamins as a class and whether or not supplementation of the diet with man-made manufactured vitamins is advisable for health-seekers. We, of course, accept the fact that real vitamins are a necessary nutrient of life.

2.2 What Are Vitamins?

Most people who take vitamins religiously have little or no real understanding of what vitamins are and what their function in the body is. Vitamins are not mysterious substances that hold the key to life and health in and of themselves as one might be led to believe by reading the popular literature on the subject.

2.3 A Very Profitable Business

The selling of vitamins is a very profitable business, profits often being as high as ten times over cost. Increasing numbers of persons searching for better health "repair" are purchasing vitamins. The gross incomes of many proprietors of these outlets are well over the six figure dollar mark annually. Some physicians make a practice of selling vitamins directly to their patients also, making their purchases from large pharmaceutical houses.

2.4 As Members of a Group

Real vitamins are simply one of a group of organic substances which are present in exceedingly small amounts in natural foodstuffs. They are essential to normal metabolism and, if they are in short supply, certain changes adverse to health can result.

These changes are generally cumulative in kind, not spectacular. They do not arise following a single failure to obtain a particular vitamin or group of vitamins but, to the contrary, adverse tissue changes and organ degeneration are, more often than not, the product of many years of poor management of SELF, including among many others, the failure to provide an adequate intake of vitamins from natural sources.

2.5 Need for Vitamins Grossly Exaggerated

Vitamins are only one of a group of natural accessory food factors very important in the maintenance of health. They are taken into the system as an accessory factor whenever food is eaten, foods such as ripe luscious fruits, leafy green vegetables, and other delectable food packages which come from Nature's hand.

Our systemic need for vitamins has been grossly exaggerated by certain commercial interests and, as a result, there are numerous uninformed individuals who indiscriminately ply their bodies with as many as a hundred different supplements of one kind or another every single day, some even taking single vitamins in enormous amounts, in what are known as megavitamin doses.

Not too long ago we were counseling a woman who suffered from a rheumatic disorder which greatly curtailed her ability to get around. At our first meeting she spread out on the table an array of supplements, including a variety of vitamins, that was hard to believe. She took vitamins with her meals and in between meals, before going to bed and upon arising in the morning, all in doses many times greater than those recommended by the government. She said she had been taking these massive doses simply on the basis of what she had read in the popular magazines.

"For well over a year now, but I don't seem to be getting any better. The pain goes on and my muscles keep getting stiffer." And then came the plaintive cry we hear so often, "What can I do?"

2.6 The Problems Posed by Excess

We found it necessary to explain to our client that, as with overnutrition of any kind, when the body's need for any nutrient is exceeded, the system is called upon to dispose of the excess as best it can and, in the process of doing so, the liver and kidneys are overworked and the adaptive energy and other reserves of the body wasted, never to be retrieved. Once wasted, the life energy is gone, it cannot be recovered to any appreciable extent. This woman has wasted her precious energy in coping with *unnecessary* and *unusable* materials she had been constantly putting into her mouth. It was little wonder that her health had kept on its degenerating course.

2.7 Discovery and Chemistry of Vitamins

The term "vitamin" first appeared in the year 1912. So, vitamins are a comparative newcomer on the nutritional scene. They were so named by one Casimir Funk, the scientist who gave this name to the substance which he obtained from rice polishings while attempting to isolate the factor, the absence of which was believed by some investigators to be responsible for the condition known as beri-beri. The substance Funk obtained was a pure crystalline chemical to which he gave the name "Vitamine." We now call it Vitamin B1 or Thiamine.

The two parts of the word vitamin mean "life" and "amine." An amine is a substance derived from ammonia, the formula of which is NH_3 , the N standing for nitrogen and H being the symbol for hydrogen. Ammonia therefore consists of one atom of nitrogen to three atoms of hydrogen, thus the formula NH_3 . When one atom of hydrogen is replaced by a hydrocarbon or other radical, we have a primary amine, when two are replaced we have a secondary amine, and so on.

A primary amine might be NH_2CH_3 . As you can see, here one hydrogen atom has been replaced by one CH_3 grouping (a radical).

A secondary amine might be $\text{N}(\text{CH}_3)_2$. Here, two hydrogen atoms have been replaced by two CH_3 radicals. And soon.

This is the basic chemical structuring of a vitamin, some being more complex than others.

Since Funk's initial research, efforts to find and isolate these new and exciting substances have gone on ceaselessly and still continue today.

2.8 List of Isolated and/or Identified Vitamins

- Vitamin A
- Vitamin D - Ergosterol. Viosterol. Calciferol.
- Vitamin E - Tocopherol, D-alpha tocopherol, tocopheryl, dl-tocopherol
- Vitamin C - Ascorbic Acid. Cevitamin Acid.
- Vitamin P - The Bioflavonoids - Not true Vitamins

The B Vitamin Group:

- B1 - Thiamin. Thiamine Chloride. Thiamine HCl.
- B2 - Riboflavin. Vitamin G.
- B3 - Niacin (two chemical forms: nicotinic acid and nicotinamide, the latter also often called niacinamide; Niacin Amide).
- B6 - Pyridoxine. Pyridoxine HCl.
- B12 - Cobalamin. Cyanocobalamin. Also called the "Red Vitamin."
- Biotin - Vitamin H
- Choline - one of the "Lipotropic Factors."
- Folic Acid (also known as Folacin). Pteroylglutamic acid.
- Inositol
- PABA (Para-aminobenzoic Acid). Bx.
- Pantothenic Acid
- B13 - Orotic Acid
- B14 - A mix of Vitamin B10 and B11
- B15 (Pangamic acid) - Does not meet the criteria for a vitamin.
- B17 Amygdalin. Known as Laetrile. (Does not qualify as a vitamin.)
- Vitamin F - Essential fatty acids
- Vitamin K - Menadione
- Vitamin T - Sesame seed factor, unidentified
- Vitamin U - Vitamin-like factor found in some vegetables, cabbage, for example.

2.9 Grouping the Vitamins

Vitamins are organic chemical compounds which are normally divided for purposes of convenient identification into two groupings:

1. The Fat-Soluble Vitamins
2. The Water-Soluble Vitamins

Only the more familiar vitamins are so classified. They are grouped in this manner because they cannot be more readily classified because of their chemical similarity as can be done, for example, with the various kinds of carbohydrates which, as the student already knows, can be easily grouped as monosaccharides, disaccharides or polysaccharides according to the complexity of their molecules and the similarity of their chemical construction. This is not true of vitamins since they differ widely in their chemical make-up with no clear pattern emerging.

Some vitamins are proteins with very complex molecules while others seem to be simple amino acids. Many people consider vitamins to be food, but vitamins are really not food in and of themselves, but rather protein compound's or simple amino acids which assist the body at the cellular level to utilize and assimilate the food which is eaten and, in excess, they stimulate the metabolic process. Their main responsibility is to regulate body activity.

The body also has other helpers which also perform this same regulatory function—namely, the enzymes. No one is exactly sure just how enzymes go about their very important duties but we do know that thousands of chemical actions and interreactions which are all a part of the cellular scene depend upon enzymatic action. Without their presence, these metabolic functions simply could not take place. As we shall see later, without the presence of certain enzymes, many bodily processes in which vitamins play their own peculiar role would require such high temperatures that the body would literally burn up.

Thus, the vitamins assist the enzymes, too, in their catalytic work and, for this reason, are often called "Co-Enzymes." They assist both hormones and enzymes so their role might be compared with that of the nurse's aide who assists the registered nurse in caring for all the patients!

2.10 Vitamin-Enzyme-Hormone Synergism

The secretions of the ductless glands, hormones, are the prime regulators of metabolic activity in addition to performing the very important task of instigating metabolic action. The hormones are normally referred to as instigators of metabolic action; that is they are primarily responsible for keeping metabolic activity going on. But, additionally, and most importantly, they also serve as regulators of metabolism, seeing to it that things do not get out of control—that we don't wear out the physiological clock, as it were, making things go too fast.

Thus we can see that vitamins and enzymes dually share in this major responsibility working in tandem, as it were, with the hormones. None can fully fulfill its responsibilities without the presence of the others. This is synergism at its best.

2.11 Vitamins Have Other Roles

So far as is known, vitamins supply no energy or nutrient to the human body but simply make it possible for the system to appropriate the proteins, carbohydrates, fats and salts. We also know that they are absolutely essential to growth because they are required in cellular replication (division); they play an important part in the regeneration of cellular matter and in the overall maintenance of health. Some of them are probably involved in membrane maintenance, in the stimulation of brain action, cleansing of the peripheral capillary system, in blood clotting, and in a myriad number of other activities. Their total role will probably never be known.

2.12 The Fallacy of Vitamin Supplementation

From the foregoing, it would appear logical to assume that the more vitamins we can take, the healthier we should become but, unfortunately, this is simply not true. We have a limited capacity to utilize and/or to store vitamins, as is true of food. When any substance, including vitamins, is introduced into the system in excess of present need, an unnecessary burden is immediately placed upon all the organs and systems. They cannot use the product. It is an obstructive influence in the body and therefore potentially harmful to it. The organic domain is placed in the position of having to cope with it in the least damaging manner.

The presence of any excess or foreign substance is immediately recognized. The danger-ahead alert is sent via the nervous transmitting mechanisms (the nervous system) to the control center in the brain where it is interpreted, evaluated and an appropriate response (instructions) sent out; or perhaps the alert may be relayed to a more locally placed substation (a plexus) for a sympathetic response.

If an obstructive foreign substance (for example, a vitamin overload due to dietary supplementation), cannot be stored or disposed of by temporarily or permanently "dumping" it somewhere in the body where it will not greatly interfere with normal systemic function but can be "tolerated," then the body will instigate other measures to get it out of the system as fast as possible.

The usual route for such exodus is via the kidneys and when the kidneys are thus called upon for emergency service, they must necessarily work overtime. Vitamins, when taken in excess of actual body need, are handled in exactly the same fashion as any other unnecessary impediment. In the case of vitamins, the easiest and quickest way to get rid of existing excess is to incorporate it in the urine and send it out of the body via the bladder, making the urine a very expensive secretion, indeed!

In order to accomplish the "dumping" or the rapid exodus of any foreign or excess material, vitamins or other, the body is stimulated by the nervous response and shifts into "high gear," stepping up the metabolic activity. The stimulation makes the vitamin-taker feel good, at least while he takes the vitamins, and it is for this reason that the need for this kind of stimulation can become habitual.

Why, you ask. It seems that a very delicate balance obtains among and between the secretions of the ductless glands, the hormones, the vitamins and the enzymes; especially with the millions of enzymes

which are directly concerned at the cellular level with the multitudinous activities comprising the life process. You see, once inside your body the vitamins take their proper place in a tremendously complicated scheme of life about which we actually know very little. They do not just work alone but they require other factors for them to be effective at all, factors like fats, minerals, hormones and so on. Only too soon the body becomes accustomed to their stimulating presence and when deprived of it, can sink to an unexpected and quickly felt lower level of well-being as attends all drug withdrawal.

We are only becoming more informed in this area of concern through microbiological studies. We really know very little about life within the cell. But what we do know strongly suggests that the indiscriminate taking of vitamins could and perhaps does disturb delicate internal nutritive balance resulting in metabolic confusion, a confusion which disrupts and diminishes efficiency of performance. Health is reduced commensurate to the imbalance.

Some vitamins, like the enzymes, are found in just about every living cell, plant or animal. Not all Vitamins however, are required by all animals but it does seem to be a requirement of life that the vitamins required by a particular kind of organism must be present at all times, each to play its own specific role as to time and place within that organic community. This is true, also, of man but, as we have noted, the vitamin role is secondary rather than primary, that of assistant, not instigator.

2.13 Human Guinea Pigs

Vast realms of the human life motif are yet to be explored and resolved in finality. Millions of people who are presently taking vitamins are willing guinea pigs in a vast experiment, the results of which are, by the measure of things, completely unknown and unpredictable in the absence of long-term and precise evidence.

Those persons who enthusiastically promote mega-dosing of vitamins do so on the basis of evidence that is often misleading because it is insufficient on many grounds and often misinterpreted. For example, hamsters which developed lung cancer due, in part, to exposure to smog and cigarette smoke were given Vitamin A and, according to the researchers, the development of cancers was halted. These results were interpreted to mean that dosing with Vitamin A helped to prevent the cancers from arising.

Since it takes years of body mismanagement and a multitudinous number of physiological errors to produce, as a final conclusion of the pathological process, the condition of true cancer, this was certainly a simplistic assumption to make, especially in view of the fact that, to the present at least, there are no known methods of accurately determining exactly what else is going on in the recesses of an experimental subject. It may well be that the drugging effect of suppressing symptoms may be operational within cells to be stimulated at a later date to an unhealthy derangement of cellular growth. Vaccinations prevent symptoms from arising through the toxicosis and unhealthful practices continue. Disease continues its evolutionary ways and manifests itself years later, often in more horrendous ways.

It is said that autopsies reveal that vitamin deficiencies are widespread, not only in other parts of the world; but here in America in the face of an abundance of readily available food. This is the rationale which is used to promote vitamin dosing. Little or no attempt is made to inform the public as to the realities of organic existence, to ascertain what errors are being made in eating and living that produce vitamin deficiencies in the first instance. Instead, the populace is lulled into believing that they can continue to eat *a la* their television instructions, to eat "junk" food, in fact to disobey all natural organic law and, in spite of their indiscretions, maintain a lasting health. Manifestly, this is impossible. They are being stimulated, propped up and goaded into a false sense of security, instead of being encouraged to partake of nature's grand packages which contain all the vitamins man could ever need or want.

2.14 The Living Plant as Provider

The living plant is the only organism which can synthesize vitamins, though animals create some vitamins too. This fact means, in effect, that all animals are dependent upon the vegetable kingdom for

their vitamins. It is true that some animals can take the immediate predecessor, the precursor of the vitamin, the provitamin, and from it complete the synthesis of the vitamin itself as, for example, man can take the carotene provided by the carrot and also in other vegetables and by a series of changes, chemical in nature, convert it into Vitamin A. To a limited extent, man is also capable of storing up vitamins in his liver and elsewhere within his body, these being included among his adaptive reserves, held in readiness for times of unusual need.

Another point of interest in this discussion is the fact that plants which have the highest mineral content also have a high content of vitamins and that the particular part of the plant which is richest in minerals is also richest in vitamins. In other words, it would appear that nature is telling us that the life processes which favor the appropriation of minerals by the plant also favor the synthesis of vitamins and that perhaps because all of nature is so symbiotically intertwined that the carefully proportionated relationships displayed by plants designed for man's consumption might also be most favorable to body processes in the human who eats of the plant.

The darker the color of the plant, the higher its vitamin and mineral content. When leaves of plants are exposed to many days of suitable sunshine, they are more abundantly endowed both with vitamins and minerals. This fact seems to tell us something: namely, that insofar as both plant and animal existence is concerned, there is a relationship existing between the vitamins and minerals, a precise balance in each plant and, indeed, in each part of the plant. It would appear reasonable to assume that, if we desire a maximum vitamin-mineral intake, we should eat of those foods that are well exposed to the sun; we should choose foods which grow above the ground for a well balanced nutrient pool and, to conserve body energy, we should concentrate on those foods that not only contain valuable nutrients but are also easy to digest and do not possess known irritants. A plant having the highest vitamin value may not necessarily be good for man to eat. A single example should suffice to illustrate this point: hot red chili peppers (raw) per 100 grams contain 21,600 units of Vitamin A as compared to a luscious ripe peach of similar weight which yields only 1,330 units.

Vitamins are found in all vegetables and fruits that serve as food for humankind and in adequate quantities. The amounts are small by our way of thinking. But nature seldom errs, we can reasonably infer from this fact that the human body's systemic need for vitamins is probably "very small." This concept, of course, has been borne out by considerable research using radioactive additives in cell studies, these being traced in their progress and utilization by means of high-powered electronic microscopes. Additionally, the theory seems reasonable also by virtue of the fact that the role played by vitamins in the living body, while essential, is still limited to that of being regulators of activity and also because they share this responsibility with the hormones.

We, the authors, have not used manmade vitamins for many years now but our health continues to improve and our energy flow does not seem to be disrupted by our abstention. An overkill of any single nutrient factor can destroy the delicate relationship among and between all nutrients and, it might well be disruptive of endocrine performance.

2.15 Overkill

Let us postulate what overkill may do. We have established the symbiotic companion action of hormones, enzymes and vitamins. Whenever hormones are not present, the production is shut off. This is known as hormonal feedback. The danger of disturbing hormonal feedback is always present when vitamins are introduced in excess of systemic need because of the stimulating effect they are known to have.

There is a precise relationship among and between the various endocrine glands under the planned instigative control of the hypothalamus-pituitary twin glands. An intelligent dictatorship determines the outflow of hormonal secretion and the stoppage of same according to the need to instigate some kind of action within the body (to use a common example, flight in time of danger) or to stop an operation in progress (for example, insulin production). The possibility arises that the presence of an excess of

vitamin input which also serves, we must remember, as a regulator could disrupt the precise management of metabolic activity and perhaps even overstimulate, producing undesirable effects, the so-called side-effects of drugs which are, after all, regular effects, always present but not always discernable. At the very least, any excess input can accelerate the biological clock.

As we have said many times, our knowledge of the biochemical goings-on within the human body are still in the pre-kindergarten stage and we place ourselves in jeopardy when we start tinkering with the body's finely tuned processes, when we pre-judge an unknown systemic need and ingest via the oral cavity or inject into the blood stream extraneous manmade substances of doubtful value, no matter if they are touted as being obtained from a natural source, they are not natural in the real sense.

In the light of our present lack of any accurate knowledge as to the exact dosages required (the government-recommended RDA's are, at best, an over-liberal (and over-lethal) guesstimate), the problem always remains as to exact need human organism can determine this with any degree of accuracy.

While minimum daily requirements for individual vitamins have been put forth, there has, to date, been no absolute test to evaluate relative vitamin needs; that is, we do not as yet have a reliable understanding of the proper proportionate values of one vitamin to another or of each to all and, again, to the hormones with which they share certain responsibilities. Surely, these values must change from, individual to individual according to metabolic efficiency. It appears all but impossible to predetermine the exact need of any one individual, let alone people in general, this certainly being a variable as metabolic circumstances fluctuate and change. Also, another point deserving our attention is that manufacturers of vitamins necessarily must use chemically pure vitamins for the most part. If they used only naturally derived vitamins, their pills would be too large for us to swallow. Natural foods contain too small amounts of vitamins to formulate heavy drugs. Additionally, they find it necessary to add a "carrier" to make their products more acceptable to the palate and to bring their product up to an exact pre-determined standard. We have no way of knowing the precise effect these chemical carriers may have on the system. It seems more in keeping with nature's plan for living to take vitamins as contained in nature's offerings where they are in organic context.

Since we know that the human body is a finely-tuned masterpiece and that simple maladjustments often present serious health hazards, this matter of vitamin proportions and relationships, as well as further consideration of carriers, could well be more important than has yet been realized. People have been dosing themselves and their children now for a considerable time with multitudinous kinds of vitamins and vitamin combinations, often in extremely large doses. If vitamins were the panacea to all health problems as they are so often represented to be, surely during the last half century we should have witnessed a phenomenal improvement in the health of the people but, unfortunately, the contrary appears to be true.

Arnold Fox, M.D., assistant professor of medicine at the University of California at Irvine Medical School and a lecturer at the Charles Drew Medical School, stated in an article published in *Let's Live* Magazine (June 1982) that he is now "treating the 20- and 30-year old children of my patients. These children are, on the average, as sick as their 50, 60 and 70-year-old parents..." To be sure, the deterioration in the health status of these children has been brought about by many factors but it is certain that the taking of multiple doses of vitamins, numerous vaccinations and other well publicized "preventive" measures has not prevented systemic deterioration; instead, it may well have accelerated it.

It would appear obvious to any discerning person that the answer to rapidly deteriorating health does not lie in taking pills, potions or injections. Most of the recommendations for supplementary vitamin usage have come about through experimentation on animals in a controlled environment situation. These experiments show results for a particular species of animal under the controlled circumstances, not as they might be in the wild.

Furthermore, the species of animal on which the tests were made may or may not bear great biological relationship to humankind and certainly the controls operational in a laboratory situation can bear little

relationship, if any, to the stress-wracked frenzied, emotion-charged life of the average person today whose metabolic activity is being constantly monitored by the endocrine gland and nervous systems.

Additionally, the experiments, by and large, have been of too short a duration to be valid. Being scientific researchers ourselves, we can say that "they" assume too much on too little evidence. It has long been known that it takes four or five generations to evaluate a dietary change. Consequently, the tests, as Herbert M. Shelton so well points out, are applicable only to the animal in question (under precise circumstances and conditions, we might add) and are not "strictly and broadly applicable to man." They might not even be strictly and broadly applicable to the *same* animal under other circumstances.

Sylvester Graham in his *Lectures* pointed out that there is similarity of function and application of principles throughout the animal kingdom, but that there are also fundamental differences from species to species. These fundamental differences make all animal experimentation suspect. The assumption of an accurate response may not always be confirmed in the revealing light of subsequent reality.

Experiments can be designed in such a way that they will produce a desired or hoped-for result. Much of the research presently being conducted is subsidized research, paid for either by government, organized groups, or commercial companies having a vested interest in certain results. Persons receiving subsidized grants, many involving enormous sums, might possibly be inclined to slant the results of their research, even without their being consciously aware of their thrust, in order to please their sponsors and keep the money bank open.

2.16 The R.D.A.'s

The average man weighing 160 pounds contains within his entire body just about 1/4 ounce of vitamins. Now it takes approximately 28 grams to equal one ounce, so this means that, if we add up all the many different kinds of vitamins in the average man's entire body, we would have only about 7 grams total, including all the reserve supplies, those that are stored up in the tissues and organs for emergency purposes, particularly in the liver and kidneys.

The R.D.A.'s (The Recommended Daily Allowances) are about double (in some cases even more) the estimated minimum requirements, which many scientists admit are not easily determined. In other words, these figures are no more than guesstimates. In fact, some scientists contend that, while extra vitamins may be needed to correct certain deficiency diseases in extreme circumstances, normal persons do not require supplementation since a good diet provides amply for all such needs.

Certainly their ideas as to what constitutes a "good" diet may differ from our own, but even so, the Food and Nutrition Board, a division of the National Research Council (organized by the National Academy of Sciences) postulates that the average adult eating a well-balanced (comprised of the appropriate amounts from each of the four basic food groups) diet will receive 7,500 International Units of Vitamin A. The R.D.A. for Vitamin A is only 5,000 units.

There is no need whatever for any person on a Hygienic diet to harken to the siren call of the paid hawkers of commercial wares—synthetic vitamins. Nature has provided well for all of us. Many millions of people lived in health for centuries before Dr. King concluded his monumental experiments at the University of Pittsburgh and isolated Vitamin C from lemons. Any *real* student of health knows that the chemist and/or the manufacturer cannot put life and health into a bottle of pills. Neither can the life force resident within a plant be extracted and compressed into a capsule and still be viable.

If you eat fresh uncooked fruits and a limited amount of fresh leafy vegetables, a few nuts and edible seeds, you will take in *many times* the recommended amounts, not in synthetic isolated vitamins to stimulate and accelerate organic response beyond its norm, but rather in desirable metabolically correct combinations with other nutrients, nature's bio-chemical partners.

2.17 Vitamins and "Cures"

There are many so-called "cures" attributed to vitamin "therapy," just as there are many so-called "cures" attributed to this or that drug. To say that vitamins can "cure" an existing malfunctioning within a sick body is to admit ignorance of the nature of disease and is an admission of commonality with the drugging practices of the vast majority of medical practitioners.

The giving of vitamins "therapeutically" or the introduction of drugs orally or by injection in the hope of favorably influencing the progress of a certain disease is a serious error because, in reality, we do not cure but simply suppress the curative actions already in progress within the system, these having been initiated by the organism itself. The suppression of the symptoms is what is normally accepted as a "cure," but, unfortunately, the cure represents only a temporary surcease until utility is recovered.

Whenever any unwanted or foreign material is thrust into the system, all vital powers of the organism that can possibly be spared from vital processes must be employed in rendering it harmless. This effort, when continued for any length of time, actually results in changing an acute crisis of healing, one that is usually of a comparatively short duration, into a chronic disease which the body will conduct unceasingly. Chronic problems often result in acute crises that can even bring an end to life itself.

Drugs have been used for thousands of years of man's existence to relieve hurts and to "cure" diseases. Man has a tendency to hold fast to his habits even though they be destructive of his very life and it is this tendency that causes man to seek "cures" rather than to determine the root of his troubles and then change, discard, modify or remove that which tends to destroy him.

We are just now beginning to understand the dangers inherent in all drugging. And, make no mistake, the vitamins of commerce act in exactly the same manner as drugs. *They occasion body defensive actions.* The toll from iatrogenic diseases (drug-related) has gone beyond the point of toleration by an enlightened public.

The toll exacted from drugs often rears its ugly head in countless unnecessary deaths and in the form of mutations in infants which must be destroyed in utero at birth and relegated to the garbage heap; in cancerous tumors which come in second and third generations; as well as in numerous less distressful symptoms soon forgotten. What the effect of our present vitamin stimulation craze may yet prove to be is a total unknown. We have no way of following successive generations of long-living humans to make a liable assessment.

Vitamins are drugs. Using vitamins is similar to drugging. The body reacts to vitamins just as it does to any harmful substance: it goes into defensive action. The pills can do nothing except perhaps enter into a chemical action of some kind. We should remember that building health is harmonious body effort, not a defensive action. Life is either "cumulative or dissipative, never static." Simply taking this vitamin or that vitamin pill will never, by any stretch of the imagination, get at the root cause or causes of a deranged body. It will never render the thickened viscous fluids of the hypertensive patient (one who has high blood pressure) pure and free-flowing; it will never heal a damaged heart, gallbladder or spleen.

The system, of course, learns to tolerate the vitamins, and the stimulation they provide often makes the person taking them feel "good;" but the good they give wears a false face, a facade that cheats, since it is the result of excitation, not health. Unfortunately, an excitation is gained at the expense of loss of vital power, power that, once lost, can never again be wholly retrieved. Only too soon, the false face fades, revealing the cruel reality of premature aging and its companion, ugly disease.

2.18 Life Science Is a Better Way

Life Science is a better way. Any person who desires the full joy of abundant health must either grow his own produce or have access to fresh fruit and vegetables, preferably organically grown, either by himself or available to him freshly picked from another source. Synthetic vitamins are divorced from their natural carriers and cannot be depended upon to build health. Life Scientists put their trust in

Nature's ways. Nature gives us a guarantee!

We can save on other things, if need be, but if we desire the best of health, we should have access to and use only the best quality of food. And, even better, we should plant our own garden of vegetables and a variety of fruit and nut trees. *We should become activists and encourage the public to plant fruit and nut trees to adorn our highways, parks and roads.* As Otto Carque said, "to provide food for generations to come."

As Life Scientists, we should feast on the fruits of our labor, harvesting beautiful vegetables, fruits and nuts at the peak of perfection, ready not only for our gustatory enjoyment and delight but also to provide amply the wherewithal for living always in a state of superb health, without our ever having to rely on synthetic man-made products, the effect of which we have no fool-proof way of evaluating. We should, above all, emphasize in our diet those most perfect of all foods, the luscious ripe fruits, fruits endowed with all the nutrients we could ever require to sustain us in perfect health throughout a lifetime of sickness-free living, always retaining a keen awareness of the universe around us and keeping in tune with the realities of life until the time comes when the life force gently slips away.

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3. Minerals

3.1 The Primary Role of Minerals

In spite of the fact that the role played by minerals in human ecology is a primary one, mineral nutrition is a relatively new field of interest. In 1904, Dr. Harvey W. Wiley wrote to Otto Carque, a celebrated biochemist of that era, as follows: "I regret to say that no one in this country has undertaken a complete analysis of all of the mineral constituents of foods." A German physician named Dr. H. Lahmann was perhaps the first scientist to direct his attention to the role played by food minerals in human nutrition. Dr. Lahmann wrote extensively on the subject in his book, "Natural Hygiene." He was rapidly followed in his work by Carque whose outstanding book, "Rational Diet," was printed in 1923 in this country and is still available in reprints.

Dr. Herbert M. Shelton has called minerals the real "building blocks" of the body. They are basic to the construction of bone, tissue, nerves and muscles; indeed, of every part of the body. Additionally, they are required to sustain every function of the organism. Without minerals we couldn't move or think. They constitute our main adaptive reserves, they provide us with the means to withstand the common stresses of the day and unanticipated trauma that may come. It would be impossible to recite their manifold functions and even so, there are, undoubtedly, functions innumerable which remain hidden in the closed recesses of the human labyrinth.

Even though minerals are manifestly of great importance to life, they are probably the most neglected area of concern in the scientific community, although in recent years more and more attention is being directed to them and to the role they play in the continuing life process. Dr. Roger J. Williams, a biochemist, in his book "Nutrition Against Disease," points out to his readers that the thesis of the work is "that the nutritional micro-environment of our body cells is crucially important to our health and deficiencies in this environment constitute a major cause of disease." The opening chapter in this work is well worth the student's attention. It presents an excellent *critique* of present medical thinking and training and the extent to which it is circumscribed by the standardization imposed upon physicians by the American Medical Association. At one point Dr. Williams points out that, "When science becomes orthodoxy, it ceases to be science." In his emphasis on the "Nutritional Chain of Life," Dr. Williams

simply stresses what should be obvious to all: the cellular need for the entire spectrum of nutrients, known and unknown, including the primary actors in the drama of life, organic minerals.

3.2 Indoctrination of the Public

Because of the growing interest in the field of nutrition by a public disillusioned with the drug, cut, sew and stitch mentality of modern medical practice (as much as one-third being so disillusioned), certain commercial interests have issued a siren call extolling the virtues of adding minerals to a multi-vitamin intake. Such advice is forthcoming on the basis largely of animal experimentation which, as we have already observed, is usually conducted under strictly controlled circumstances on biologically unrelated test animals whose life spans are relatively short when compared to that of man. It is on the basis of this kind of encapsulated research that the public is being wooed to supplement its food intake with a varied assortment of bottled vitamins and minerals even though the experiments are obviously of too short a duration to be worthy of serious consideration.

3.3 Minerals for Humankind

The human body must obtain its minerals in the form of organic salts which are present in all foods. But not all plants are fit for human food. Food is any substance which can be used by the organism, in this case man, to make blood, formulate secretions, construct bones and ligaments and build tissues and nerves without adding anything that might prove overstimulating, exciting, irritating to the cells or destructive thereof, or obstructive to function.

Man eats his food in the form of fruits and certain vegetables which contain the necessary organic salts and then, by the sequential processes of digestion, absorption, transportation and cellular assimilation is able to reorganize them into his own organic substance suitable for growth, repair, healing and for whatever function may be in order to meet the precise needs of the moment. These complex processes are concluded with drainage whereby the metabolic waste byproducts are removed and returned to their point of origin, the soil. All of those complex processes represent the internal cycles of life, which when total and kept in proper balance are capable of maintaining cellular (and thus body) health theoretically for an indefinite period of time.

3.4 The Bio-Ecosystems

All life is divided into three biologically distinct groupings: the Animal Kingdom, the Plant Kingdom and that "in-between" grouping known as the Saprophytes which, properly, do not belong in either of the two familiar Kingdoms.

The Saprophytes take the organic refuse of the world, dead plants and animals made up of organic molecules and, by the process of metabolism, disorganize it into simpler inorganic mineral elements which are then yielded up again to the soil, thereby becoming available, in an aqueous solution, to the plant where it is processed, reorganized once again into organic molecules suitable for the maintenance of the health of the plant. Suitable warmth, mineralized water and a friendly environment are essential to the efficient performance of this part of the plant cycle.

The inorganic minerals derived from decaying dead organic life, both plant and animal, thus become once again endowed with the life element, they become once again a part of a living structure, in this case of a plant, and are assigned various positions and duties within the plant organic community. Every plant has its own special design and structure, its own peculiar assortment of organized organic molecules.

Roots have their own exact array within the organized mineral community, leaves another, the fruits still another and so on. Seeds contain the force of life, the ability to reproduce. Together, all the parts of the plant represent the food bank of all the world's living organisms, from the largest to the smallest, both

plant and animal.

In the earth's carefully programmed ecological sequence, animals are not designed to utilize inorganic minerals. Nor do they have the ability to utilize them in the life processes of building, repairing, healing, replication or in any function of any kind. To the contrary, animals are able to use only organic minerals as food and each species has food which is set apart for its use. Grains keep birds in, perfect health. Each morning here at the ranch we feed the many species of birds that live here: red-breasted finches and the desert owls of little size and haunting cry. They get plump and fat on our seeds and on native plants.

Man, not being a bird and lacking both a beak and a claw, cannot obtain adequate nourishment from grains (seeds). A turkey has a large gizzard and can process and then utilize enormous amounts of seeds, including nuts and the hard shells thereof. Man, on the other hand, is structurally designed to eat abundantly of ripe fruits, plus a few leafy green vegetables and perhaps some few nuts and edible seeds. Such food is suitable for humankind and all these foods are well supplied with all the minerals required to sustain him in superb health.

3.5 Inorganic Salts and Man

Inorganic minerals will be rejected by the human body and, if they cannot be, removed from the body in some way, will remain in the fluids or be deposited as a precipitate wherever convenient, thereby proving to be an impediment to efficient function. Common table salt is such an inorganic salt.

Potassium salts are sometimes prescribed for heart patients, to raise the potassium level of the blood. A temporary elevation is often obtained but, upon discontinuance of the potassium pill, the level soon falls again. Last year we had a dramatic example of the folly of taking inorganic potassium. A client came to us with a potassium blood reading of 2.0, dangerously low (5 being optimum). She had taken an inorganic potassium supplement for many months but, whenever the medication was suspended, her potassium level rapidly fell. At the time she first came to us, she was fainting six and seven times a day. She was fed properly, mainly on fruits, leafy green vegetables, plus a few nuts and an occasional baked potato (not necessary but enjoyed by this particular client) and, within a very few weeks, her potassium level rose to 4.5 and has remained there ever since without benefit of any medication of any kind. She no longer faints and has shown a remarkable resurgence of energy.

If a sufficient amount of inorganic material is taken into the system, it may settle out adding to the viscosity, the thickness, of the fluids to such an extent that, in time, the body will simply have to deposit the "sludge" wherever convenient, in arteries, in joints, around nerve synapses, in muscles causing an imbalance in the solid-fluid ratio, with a gradual stiffening and rigidity of muscles and brittleness of the bones taking place.

Table salt is inorganic. If we add table salt to our food as a condiment and then ingest that food, we may find it to be highly toxic and destructive, especially of nerve tissue.

However, as, an organic component of a healthful food such as Romaine lettuce, produced for our sustenance by the combined efforts of bacteria, soil, air, sun and the plant itself, it will be put to good use within our body. For example, organic salt could be united with free-floating acid radicals which, if left alone to do their mischief, could tear the tissues apart but, when united with sodium, contained in the food salt, are simply eliminated from the body or perhaps just rendered harmless. The salt contained in food, being an organic salt, can be used. It can help keep the body fluids clean and pure. It also forms an important component of many body secretions, the tears and gastric juices among others.

Suffice it to say that to live we require a wide variety of minerals for all kinds of purposes. We require them for all the vital processes but we must remember that the body will reject inorganic salts because it has no mechanism to use them. Not that human design is faulty. It is just that a better arrangement has been made.

Nature has developed so that the human body depends upon only naturally chelated minerals, minerals

organically organized within living food molecules. It will reject the inorganic molecules because they are unusable. They contain no life. Food molecules, and especially plant food molecules, have incorporated within their complex structures the very essence of life. Man, having his own niche in the bio-ecosystems, is required to eat of the foods specifically adapted to his needs.

3.6 Chelated Minerals

Laboratory-synthesized chelated minerals have become a big thing in recent years, their "virtues" being extolled in just about every popular health magazine on the market today. Chelated minerals are minerals that have been bound to or bonded with amino acids or to a more complex protein molecule. The idea seems to encourage people to "live symptom-free, but to keep the disease." The word is that if an individual will supplement his faulty diet with man-made chelated minerals, he will be free of his annoying symptoms.

3.7 Deficiencies and the Fallacy of Therapy by Supplementation

Hair analyses are routinely made to detect mineral "deficiencies," as are blood readings. Unfortunately, perhaps, neither the hair nor blood is static. Their composition is always in a state of flux. But, be that as it may, many such "deficiencies" are attributed to poor digestion which, in turn, is simplistically ascribed to a lack of sufficient hydrochloric acid in the stomach. When this latter is suspected, it is the modern practice to perform the Heidelberg Gastric Analysis, a means of determining how much acid is secreted in the stomach via evaluation of radio signals sent out from a small capsule which has been swallowed, these radio signals being recorded by a special sensing device contained in a belt wrapped around the abdomen. In the event that a deficiency is recorded, the common practice is to provide in a little capsule the missing amount of hydrochloric acid. This "therapy" is intended to improve the digestion of protein and, thus, in due course, the mineral availability to the body. To ensure that the patient secures an adequate mineral intake in the interim, he continues to pop his chelated pills.

The basic fallacy of this type of "therapy" is that a lack of sufficient hydrochloric acid in the stomach indicates a deterioration in the health of the stomach acid-producing glands, these having been enervated by multiple errors in eating and living. As a result they may be burdened down with catarrh and be incapable of efficient production. Not only are the stomach glands affected by enervation but the entire system suffers. When any part of the body is tired, overburdened with toxic waste, efficiency of function is lowered.

3.8 A Better Way

Hydrochloric acid capsules and chelated pills are not usable. They further cripple the body. Swallowing acid and popping pills is anti-health. The better way is to begin to cleanse the body, to get rid of the morbid wastes, to disorganize and remove the fat, to autolyze the cysts and the tumors and then to rebuild a healthier body, a superbly functioning organism, using all the fundamental requisites of organic existence. When this has once been accomplished, the symptoms will long since have departed, the blood and fluids will no longer be deranged or scant in supply, and they will be abundant and free-flowing, pure, and will run in their channels carrying mineral and other nutrients to service the needs of the cells.

3.9 The Law of Economy

The Law of Economy states that where there is no demand for the production of a product (secretion, etc.), the body will not produce said product. If supplements are substituted for a product which is normally the result of a life process within the body, the time will soon come when the supplemented individual will become supplement-dependent, no longer able to manufacture the product so vital to his life. Without the supplement, his health will rapidly deteriorate. No "cure" has been affected, therefore

the lack will reassert itself.

When supplements are taken, the body is and will continue to be stimulated while the dosing continues. Supplement-taking cripples the system's powers of synthesis while the internal deterioration proceeds unabated. The process can be somewhat compared to the addiction that results when so-called "hard" drugs become a way of life. After a time, the individual more often than not finds that he must have recourse to an increased mineral intake in order to obtain the same feeling of well-being. But dosing, of course, has its limits since no healing has taken place.

3.10 Imbalances Within The Body

Another point illustrates how futile it is to dose the body with this, that or the other mineral pill, chelated or not, and that is the fact that the human being must have all the nutrients present as and when required but, more than that, it must have them in their proper synergistic organization, proportions, if you will, one to another and each to all. The body will simply not put up with imbalances of any kind. In fact, when an imbalance exists, the body is in trouble and it will let us know by one method or another, by this symptom or that.

When an excess (or a deficiency) of any one material (or other nutrient) exists, an imbalance is present. Such an imbalance may cause the nutrient in question, mineral or other, to be worthless or, what is even worse, *it may prove to be a handicap to the proper utilization of all the other nutrients!* This is the Law of the Minimum.

Minerals are required by the living system; vitamins and enzymes are required, all the nutrients are essential to support the life systems but they must be present in a balanced synergized organic context as contained in the various food packages designed for man's use or they are worthless. Not only worthless, in and of themselves, but the imbalance created because the system cannot fully utilize isolated man-made minerals, chelated or not, reduces the effectiveness of all of the other nutrients, including perhaps even the organic minerals that are present in the dietary intake perhaps by as much as one-half and, if other deleterious factors are also present, possibly even more.

3.11 Selenium—To Illustrate a Point

Selenium is a mineral that has come into prominence especially since the publication of *Selenium, As Food and Medicine* written by Dr. Richard Passwater, Ph.D., and published by Keats Publishing, Inc.

Dr. Passwater relates how important selenium is in maintaining health. The inference is certainly given that adding a little selenium to the diet may just help prevent a person's coming down with serious diseases. Following the publicity on the attributes of selenium, health food stores were invaded by persons eager to escape all the ills of the world's sick simply by adding a little pill containing this trace mineral.

Selenium is now included in most multivitamin and multimineral supplements. Oddly enough nothing is said about selenium's toxicity as added to supplements in an inorganic state. And even more, little is said about how the roots of certain plants, like the many fruit trees and the alfalfa plants, have roots which penetrate down through the surface soil deep into the sub-soil where they seek out and take up dissolved minerals of all kinds, gross and trace, these to be reorganized into plant substance to sustain the plant's specific needs. When man eats the fruit of such plants or parts thereof which are adapted to his body design, he receives all the minerals he can use, including the trace mineral selenium.

Fruits, the product of trees and vines, are the best of all foods just because their root systems are far-reaching and deep-searching. When fruits are formulated they contain within their rich goodness, all that man requires to live in health. Fed by the soil and air, they are man's finest food. When vegetables and a limited amount of nuts or edible seeds are also occasionally eaten, fruits will amply fulfill man's nutrient needs.

3.12 Minerals as a Nutrient

As we have previously noted, minerals are one of a group of nutrients. They are a part of every cell, tissue, organ and system of the body. They are especially concentrated in the bones, teeth, hair and nails. Without minerals, the alkalinity of the blood and other fluids of the body would be in extreme jeopardy because a correct mineral presence is required not only to sustain this alkalinity but also the viscosity (the stickiness, fluidity) and the salinity (saltiness) of all systemic fluids.

Minerals serve to detoxify the system whenever solid wastes threaten it. Therefore, whenever the human organism has a full complement of minerals, all readily available at the required time, it is protected against decay and rot. The proper concentration of mineral salts in the interstitial fluids keeps cellular membranes from bursting and spilling forth cellular contents. The proper proportion of mineral to mineral keeps the plasma membranes and cell walls intact with full selective power, the ability to accept or reject nutritive material as it passes by in smorgasbord style, offered up by the fluids as they journey on their course to every cell within the organic domain. These membranes also retain the ability to pass all obstructive debris which by its presence could disrupt cellular activity through and out of the cell.

Let us briefly explore another aspect of mineral balance. We have already pointed out that the blood and other fluids must keep a rather carefully prescribed quota of minerals at all times to maintain rather narrow parameters of pH (alkalinity). If the pH varies even minutely, sickness and even death can follow, and quite rapidly. In order to keep the pH stable, the homeostatic mechanisms of the body will take from those organs which are adequately provided with the minerals the system requires to perform specific duties and to take whatever amount is needed to continue the life process. The body makes the best use of its resources.

The mineral selected most often is calcium, this being in time of grave need, rudely obtained from the teeth (producing caries) bones (leading to sponging, osteoporosis). That mineral deficiencies are widespread is evidenced by the fact that over 99 percent of Americans have one or more dental caries and most persons over the age of 50 give evidence of osteoporosis. Taking calcium supplements which are inorganic cannot solve this problem. Rather, supplements may lead to faulty systemic managements, not only of calcium but also of other minerals according to the Law of the Minimum, demonstrating again how poorly the body can tolerate imbalances of any kind.

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4. Enzymes

4.1 A Question Answered

"Wouldn't it be wonderful if our scientists could come up with a substance which could assure digestion of our foods, clean our dirty sores, reduce inflammations, promote healing, liquefy the thick mucous discharges emanating from our many diverse serous and other membranes within the body cavity; in short, work all manner of miracles?" Well, they haven't, but Nature has! In fact, Nature has produced a whole family of such miracle workers and they are known as enzymes.

The human organism contains countless millions of enzymes. They are contained in the food we eat and in every cell of the body. Enzymes are very specialized organic compounds of polymers of amino acids. A polymer is a larger molecule or compound formed by the union of two or more smaller identical molecules. Enzymes are formulated when two or more identical amino acids are united in a chemical union.

Polymers are never found in the inorganic world. Therefore, enzymes are found only in living plants and animals. They are proteinaceous catalysts of biological activities. Since this statement is quite a mouthful, let us probe a little further to get a greater understanding of the specific role played by enzymes.

4.2 A Catalyst

The word catalyst is defined in the Thorndyke-Barnhart Advanced Junior Dictionary as "a substance that causes catalysis" with catalysis then being interpreted to mean "the causing or speeding up of a chemical reaction by the presence of a substance that itself remains practically unchanged," this last in our frame of reference referring, of course, to an enzyme.

The New American Encyclopedia (1939 Revised Edition) defines catalysis as a "chemical process by which the reaction of substances is quickened by an added substance which does not itself undergo a change. The added substance is called a catalytic agent or a catalyst. An example is platinum, the catalyst used in mfg. sulphuric acid."

4.3 Enzymes as Catalysts

Enzymes serve as catalysts to metabolic activity. They act to assist the speed of the many chemical actions and reactions involved in the metabolic process and also help these activities to be brought to a successful conclusion. As catalysts, enzymes are capable of increasing the rate and effectiveness of a reaction without being consumed in the process.

Many of the processes which go on in the human body at normal temperatures would require in a laboratory situation hundreds and even perhaps thousands of degrees of temperature and perhaps even the presence of a strong violent reagent for their accomplishment. These same reactions are accomplished by means of the enzymatic presence almost instantaneously in the calm peaceful environment of a healthy body.

4.4 Classifying Enzymes

Enzymes come in many sizes and vary as to their specific duties. At present over 700 different enzymes have been identified but so many millions of these miracle workers are known to exist that they have simply been grouped in three general categories, as follows:

1. hydrolytic (water-absorbing);
2. oxidizing (uniting with oxygen to supply heat and/or energy; as in a combustion);
3. Reducing (subtracting from a particular complex molecule certain elements, groups of elements or electrical charge).

These names are applied according to the type of process the enzymes control.

Individual enzymes are named by adding "ase" to the name of the substance on which they work, scientifically referred to as the substrate as, for example, the starch-digesting enzyme ptyalin or amylase. Trypsin is sometimes referred to as Trypsinogenase or proteinase because it assists in the resolution of protein (splitting the complex protein molecule into smaller chemical units or molecules). Lactase assists in the resolution of lactose, or milk sugar. And so on.

4.5 Enzyme Activation

Most enzymes actually exist in an inactive form until such time as their catalytic talents are called upon by the organisms. It is interesting in light of the fact that many people are taking enzymes regularly as supplements to realize that, in order to initiate the action by an enzyme, that is, to activate it, some metal ion (an electrically charged particle) or some simpler organic molecule or co-enzyme(s) must also be

present.

As we have previously noted, vitamins serve as activators as well as regulators. They can serve as activators of enzymes and, at the same time, as regulators of enzymatic activity; again, a very good example of synergism within the system and, also, a very good reason taking isolated enzyme factors may be disruptive of normal enzymatic activity causing fluctuations of precise temperature ranges necessary to conclude successfully an important metabolic process.

Enzymes act only within very limited temperature ranges, this being true also of catalysts used in certain laboratory situations and industrial processes. At about 94 degrees, food enzymes start to lose their effectiveness, their ability to fulfill their catalytic duties and at about 118 degrees, they are no longer of any use. At the other end of the scale, they start to become inactive at about 32 degrees and seem to be totally destroyed at minus 104 degrees Fahrenheit. Thus it is that baking, boiling, frying, stewing, roasting, heating of any kind, dehydrating and freezing will either reduce or completely destroy the enzymatic presence in food.

When it became known that some enzymes were contained in food and that they probably helped in the digestion thereof, many people began talking about "live" food, but this was a misnomer since enzymes are in no sense "alive," as we think of the meaning of this word. However, the concept of "life" in food led to many foolish ideas and fads in eating, some persons going so far as to eat nothing except what they were able to pull off a tree or pick from a vine or bush and pop immediately into their mouths, as if to catch the life element before it escaped. By this practice they hoped to live forever.

Certain supplement-happy practitioners go so far as to have blood tests made in order to evaluate the adequacy of pancreatic enzyme production, the same pancreatic enzyme which functions in the disorganization of carbohydrates in the small intestine. Since some of these enzymes are known to be absorbed from the GI tract into the blood stream, it is postulated that we can assess the amount of enzyme production by noting their presence in the blood.

Other methods are also used, such as the indican test which measures the amount of unused breakdown products which result in the absence of sufficient pancreatic enzyme to digest protein, these being directed to and collected in the urine. When such deficiencies are found to exist, supplements of pancreatic enzymes and perhaps even of hydrochloric acid are given to correct the situation instead of either reducing drastically the protein intake of the patient to one more in balance with normal enzyme production or fasting him to remove the toxic wastes that now burden his body preventing efficiency of production at the cellular level, a condition which probably exists throughout the body. In other words, an attempt to restore the enervated system to a condition capable of more efficient production on all levels, including the synthesis and utilization of enzymes, would be a more sensible way to approach the problem.

4.6 Research

The enzyme ribonuclease was first discovered in 1938 by the bacteriologist Rene Dubos. (Ribonuclease acts as a catalyst in the hydrolysis of ribonucleic acid.) Eight years later Moses Kunitz, an American chemist, isolated this same enzyme and 23 years after that, in 1969, by two teams of researchers from Merck, Sharp and Dohme, the pharmaceutical company, and from Rockefeller University, this enzyme was finally synthesized. Since that time research has continued in many areas with the hope that enzymes can be manufactured and administered in the form of pills or by injection as agents in the prevention of disease or as a curative agent should disease exist.

Researchers are persistent. They have been hard at work learning about the chemistry of enzymes and how they work, trying to solve the mystery of how they can accomplish so much at such low temperatures. There is no doubt that much will be revealed in future years but, to date, we work on the fringes and have failed to solve the mystery.

4.7 Other Roles

Enzymes not only help to affect the marvelous processes of life but they also assist in death. Every minute millions of our body cells conclude their duties and die. Whenever cells die within the living body, they must be disposed of very quickly else the metabolic processes might soon be overwhelmed by the dead and dying cells and all life would necessarily come to a halt. This is where enzymes function in another capacity.

The dead cells are immediately set upon by the enzymes assigned to this specific type of cleanup duty. They are lysosomes. They disintegrate the clutter before it can obstruct normal function. Interestingly enough, there are no enzymes other than rigidly controlled lysosomes that can digest a living cell! Since enzymes lack this power, life is protected from destructive catalytic action and living cells just go on about their business.

Enzymes usually work at their point of synthesis within the cell where they are formulated. Their chief duty appears to be the building of proteins which are suitable for the particular host cell where they reside. Man is truly "fearsomely and wondrously made." And we labor under the delusion that supplementary enzymes can substitute for innate intelligence.

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5. Other Supplements

Man has been very ingenious in attempting to find ways to make up for or compensate for his own shortcomings as to diet and lifestyle. We find persons who take yeast regularly. At first, they experience stomach pains which are early warning signs that the body is rejecting this vile substance but, as is usual, as the individual persists in ingesting it, the system soon accommodates to the poison, giving up vital force in doing so.

Anemic people religiously take their iron pills hoping to "cure" their anemia. While they may experience stimulation, they "cure" nothing. Their bodies continue to deteriorate both in structure and function. We know one woman who stoutly maintains that her anemic condition was "cured" by taking iron pills as prescribed by her physician. She has been taking these iron pills for over fifteen years. We look at her and wonder to what purpose as we see the pasty complexion, the curving spine and the appearance of premature wrinkles on her face. We ask, "But where is your health?"

Still others sprinkle bran on their morning cereal (cereals are not fit foods.) They add it to their salads and have cheer in the thought that they will be sure to have their morning BM. And yet, examination of raw bran under a microscope reveals jagged sharp edges which, in due time, will lacerate and tear away at the mucosal linings of the digestive canal and bring future sorrow and pain.

We know that substituting extraneously produced insulin for glandular insulin (produced by the Islets of Langerhans (located in, the pancreas) will, in time, about two years as a matter of fact, lead to the atrophy of that gland; and that using thyroxin as an aid or substitute for thyroid function will eventually deactivate the thyroid. We could recite a whole array of such supplementary "aids" to this, that or the other natural biological process, but one we wish to address at this time is the so-called "Starch Blocker."

The manager of one of our local supermarkets told us recently that he has never witnessed anything like it. People are buying this new fad supplement so fast that his store has difficulty in keeping up with the demand. Fat, people are lured into believing that they can lose weight rapidly while continuing to eat in a manner contrary to health.

The usual starch blocker is a legume derivative, high in protein. If the student will refer back to Lesson 23 in this course, he will understand why the starch blocker will do what it promises—namely, permit the person to eat extensively of carbohydrate foods and not gain weight, even to lose pounds. What the ads do not tell is that the Starch Blocker will prohibit enzymatic action on the sugar and starch goodies because the high protein presence provokes the normal acidic gastric response which, of course, more or less instantly stops carbohydrate digestion activated by ptyalin and other starch-digesting amylases.

This is anti-health self management of the worst kind, one that will lead inevitably to fermentation and putrefaction throughout the entire alimentary canal of all food eaten, not only of the carbohydrates; certainly an unhappy circumstances at best, one that, if continued, can be highly destructive of health. While the early prognosis may be favorable to immediate weight loss, the long-term prognosis for persons who continue to use a starch blocker instead of common sense, is bleak indeed. Life Scientists know that beauty, health fitness and a sickness-free extended life span can only follow in the wake of a lifetime of correct eating and living, not through the use of supplements or substitutes for reason.

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Article #1: Disease, Stimulation and Therapeutics—A Question of Consistency

In the field of nonmedical care of the ill, a current topic concerns the use of "natural" treatments.

Treatments, therapies are artificial. "Natural therapy" is a contradiction.

The following is a Hygienist's view. There are some basic Hygienic principles which are frequently accepted in general discussion by proponents of Osteopathy, Naturopathy and Chiropractic. In practice these principles are often not merely neglected, but flouted. It is not the primary intention here, to present the proof-ramifications of these basics, but to make them clear, relate them to therapeutics and so show the incompatibility of therapeutic philosophies with Natural Hygiene.

Health and disease have a common ground—the living organism. Without life, there is no health; no disease. Disease is the expression of life in response to unfavorable circumstances. Health is the expression of life in response to favorable circumstances.

Toxemia is a poisoned condition of the organism. In toxemia, there is an accumulation of poisons, inhibiting efficient, normal function.

Enervation is a state of lowered nerve action, in which the nerve tissue's energy reserve is depleted; depleted through excessive nerve activity; activity necessitated by stimulation. Tired, exhausted nerves cannot adequately direct elimination. Reduced elimination increases toxemia. Toxemia stimulates. Toxemia compounds enervation and enervation compounds toxemia.

To break this vicious cycle and so overcome toxemia, the body suspends or reduces certain activities such as digestion and muscular effort. Thus the body conserves energy and nerve function which it redirects to make quantitative changes in its activities—to produce such actions as fever, diarrhea, polyuria, hyperhidrosis, vomiting—to remove irritating agents; that is, to eliminate. Such actions reflect the coordinated irritability of a complex organism. Irritability may be defined as that ability to take self preservative action in the face of adverse influences. Such actions are often labelled "disease."

Therapeutics is the art of altering the expression of the organism's irritability. We do not die from disease (our body's functioning) but from toxemia; from the causes of toxemia. To a large extent the body protects itself—but constant dripping wears away the stone. Any program of care that does not remove the causes of toxemia is not rewarded with health, for the body by virtue of its irritability will not cease

to be "sick," to be "diseased," to remove, or to accomodate to toxemia until success or death. If the need for disease is not removed, health will not ensue. This is another Hygienic principle. To seek, identify and remove the causes of toxemia is the constant aim of the Hygienist. The causes of toxemia and enervation are largely exogenous (i.e., from outside the body). The toxemia may be due to the accumulation of metabolic wastes or intermediary products of metabolism as a result of enervation, or to the absorption from the external environment of commonly recognized poisons such as drugs, preservatives, metals, poisonous gases, insecticides. In this article we are concerned with endogenous (internally) produced toxemia generated as a result of enervation; enervation due to exogenous influences—stimulants. The athlete who "runs" on a full stomach probably will not perform well—he certainly will not assimilate his food well; he will not do so because the resources of his body are directed to the performance of his athletic "feat." Digestion and alimentary assimilation are suspended because his body cannot perform all of its activities at a high rate, all at once. So when the body exerts itself in specific directions as it may do in response to the presence of drugs or other stimulants in order to remove them, normal routine elimination (the elimination of endogenous toxins) is reduced. Elimination is normally increased during rest and sleep, partly because of the relative reduction in stimulation at these times. So a stimulant, that is anything—physical, chemical, spiritual, mental—you name it—that necessitates body action which would otherwise be functionally, physiologically unnecessary and unrewarding to the organism results in toxemia and enervation. If we waste our vitality, our energies, our resources—in short, our life—then the level of toxemia remaining after rest and sleep is greater than it otherwise would be. So if there is a progressive waste of function and lack of rest and sleep, there is a progressive increase in the level of toxemia. This toxemia, the endogenous toxemia of stimulation is that which makes drugs (apart from their chemical toxicity) and therapeutic modalities whether "natural" or medical, objectionable to a Hygienist. The "Natural Theraputists" agents may be different to those of the medics but the effects are similar—stimulation, enervation, toxemia, disease...

By Ian Fowler; A.A.I.M.L.T. reprinted from the June, 1973 Newsletter of the Australian Natural Hygiene Society in the June, 1977 issue of Dr. Shelton's Hygienic Review.

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Article #2: The Law of Stimulation

The body "sounds an alarm," in times of danger and immediately accelerates body action. Such is the effect whenever any toxic or irritating substance or influence is introduced into or upon the body. The system, under the controlled guidance of the brain and via the autonomic nervous network, then evaluates the situation and reacts with a suitable increased action, this action being impaired to an extent appropriate to the obstruction which is present. In other words, the amount of the impairment will be in direct proportion to the degree to which the action is accelerated.

All such increased action occasions an extra expenditure of the energy reserves ordinarily maintained by the body to cope with undue stress of any kind; for example, such increased action might be an extraordinarily high pulse rate. The result of this unusual expenditure, of course, is to lessen the availability of reserve power and, hence, of the ability of the individual adequately to meet challenges and stresses as they may arise at some future time.

We call anything which causes this increased action on the part of the body, a "stimulant." Of course, the immediate effect of the stimulant is that which is most, evident, that the stimulant is working and doing "good". This feeling of well-being is only temporary, however, since while the stimulant appears to do good, it is actually doing harm, the extent of the harm done being dependent upon, and in a precise ratio to, the amount of power called into play to produce the accelerated response, the feeling of well-being,

of euphoria.

This is the Law of Stimulation. It reveals the physiological consequences of false deception. It pertains to all stimulants: drugs (vitamins, etc.), coffee, tea, cocoa, alcohol, nicotine, even to snake venom which is currently being extolled as a "miracle" treatment in the care of victims of muscular dystrophy, the effect of many of these stimulants being extremely exciting; and also to lesser ones such as the various herbs, onions, garlic and the like. All *appear* to do good, but all perform a disservice to the body in that they do lasting harm, the harm being due to the fact that they reach into the body's energy reserves to accomplish the good they appear to do and *offer nothing in return which is of lasting value*. Their efforts are cumulative and remain with the person who employs them. The sense of euphoria occasioned by their use is *always* followed, in time, by a depression due to the expenditure of power required, as we have seen, to bring about the exhilaration in the first instance.

Certain stimulants are said to "act" on certain parts of the body as, for example, digitalis is said to "act" on the heart. The exact opposite is true. In this case, the heart is already weak and the digitalis only serves to weaken it further. All stimulants are useless to the body. They cannot become a part of the body; they cannot be turned into blood, flesh, or bone. They present an encumbrance to body action and, for this reason, a threat to efficiency and a hindrance to perfection.

The human body is designed for efficiency and for perfect performance. Accordingly, whenever it is threatened even in a miniscule way, it makes operational its defensive measures in an effort to eradicate from the system the threatening substance or influence. Thus, it will expend power *beyond the norm* to cleanse the body of the offensive substance and to prevent the resulting raid on the banked energy reserves.

Let us emphasize also that stimulants do far more than speed up the vital organs and related parts. They do far more than waste the vital reserves. In addition, and most importantly, stimulants such as tea, coffee, horseradish, alcohol, mustard and the like actually inflict an injury of some magnitude upon the very tissues with which they come in contact. In other words, their use wounds and hardens the cells and it is because of this wounding and the necessity thus imposed upon them by the danger to protect themselves from further injury, that the cells begin their defensive action, whatever it may be.

This defense may take place in degrees, the first amounting to little more than a mild exaltation, or increase, of cellular function. The milder the stimulant, the milder the irritation and the less the speeding up of cellular activity. This kind of stimulation, the kind that threatens cellular integrity, must always be differentiated from the stimulation and revitalization which are observed following proper nutrition which serves to renew body reserves. (Compensatory Stimulation.)

No tonic or drug will have an effect on a single tissue or on a single organ of the body, nor on just a few isolated tissues, organs or cells. The very physiology of the body, the fact that the blood flows freely to every unit of life within the total physical structure underscores the reality that such is impossible. The effects of any drug, of any tonic, of any other irritant are wholly systemic; that is, they are unlimited insofar as their area of involvement is concerned. The extent of systemic undermining, the damage done, is an individual affair, some persons being affected more, others less; but all being reduced to an extent in keeping with their individual strengths and weaknesses, simply because, for an immediate effect, they have sacrificed some unknown amount of the essentials of life: perhaps and surely, some irretrievable loss of energy plus an undeterminable amount of tissue damage which will remain as a handicap throughout life to efficiency of function, even though it be only in the form of weak scar tissue.

There is, of course, always the danger of pushing beyond the powers of life, as many a drug user has found out, too late. It is now simple for us to understand how and why this can occur when we realize that any stimulant which is uncompensated brings about the expenditure for the vital living power of the body, the force that sustains life. Stimulants do not and cannot supply this power. Once the power has been used, the person so depleted has lost it forever, and this is why the feeling of exhilaration induced by drugs is always followed by increased weakness. With the constant use of uncompensated stimulants, the force of life is gradually tapped and drained away. The lesson should be plain. The constant use of

coffee, drugs, vitamins, even herbs, will slowly, or rapidly, destroy the essence of life as they are used and according to the inherited constitution of the user.

Let us make a further point. The action by the body is *always* forthcoming, always there, the extent to which it is exhibited being wholly dependent upon the power which is available. In other words, loss of vital power will be experienced by *every* person; the stronger the person, the stronger the response; the weaker the individual, the weaker will be the response.

We, of course, cannot see this expenditure of the body's life immediately. We cannot watch an alcoholic, for example, and say, "Ah! Ha! There it goes!" Certainly not, but we do notice it as we are using it because in the using lies the stimulated euphoria. One moment the alcoholic's hand may be trembling but give him a drink and he will soon be "on top of the world," as we say, with all trembling gone. His euphoric state came from increased vital action which yielded up part of his "bank account."

We only become conscious of our lack of energy after the bank account has been raided too often—when our power supply is too low. We can observe a similar circumstance in our car battery. When it has power in reserve, we are pleased with its performance but the very use of that power depletes its reserves and the time comes when the source of energy fails us to the extent, perhaps, that the lights no longer glow and the car will not start. We are not able to see the energy stored within the battery, we could only observe it at work—when the lights glowed and the motor hummed. The same is true of the human body. In sleep, we display no sign of the power gathering in the slumbering body. The stimulant causes the power to be used and brings no power with it to replace that which is expended. Sound nutrition, on the other hand, always replaces the reserves which are expended in the performance of all of life's activities. Sleep restores the energy bank.

Herbert M. Shelton states the Law of Stimulation as follows: "Under all circumstances, vitality or energy of any character whatever is invariably manifested or noticed by us, as energy, in its expenditure, never in its accumulation." Herein, of course, lies the fallacy of modern medical practice as it pertains to the use of drugs to "cure." We seem stronger when we use drugs (commercial vitamins and minerals are drugs) only by the expenditure of our vital force, but we grow weaker as we steadily draw upon the reserve energy supply of the body. Unfortunately, in today's medical practice, the weaker the person is, the more it is thought that he must be propped up or goaded into a false sense of well-being by applying some drug or other means of "support" (as, for example, vitamins, mineral and other supplements).

The exact opposite, of course, should be the practice! The weaker the individual, the more he must be left alone to husband his resources, he must be left alone so that the pendulum of energy can swing once more in the opposite direction. Efforts to stimulate, sustain, and invigorate the tired, sick body by the use of any kind of tonic—the whipping effect—always produces an equal and opposite reaction—depression of both vigor and function. This is the Law of Stimulation and it is always in effect under all circumstances, in sickness and in health. False stimulation can produce no fruit of lasting value.

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Article #3: Patients Dilemma: Who's Taking Care of Them? by Mrs. Elizabeth McCarter

Current articles and editorials on medical malpractice suits and the physicians dilemma are most

interesting, but one aspect of the situation has escaped attention—the patient's dilemma.

Not many doctors are aware that many of their patients, particularly the elderly, live in a state of quiet desperation and fear, afraid of the very persons on whom they must rely for healing.

Older people, for various socio-economic reasons, tend to live in communities with their peers, and they are acutely aware of what occurs daily among their neighbors.

Mrs. X has an eye infection. Her trusted doctor informs her she has a severe condition and that he will use a new drug. Two days later her pain is intense, her face swollen.

Now her doctor informs her she is allergic to this new drug and takes her off all medication. The condition heals itself.

However, damage has been done and she will never see quite so well again. Mrs. X has a dilemma, to be sure. She has impaired vision.

Mrs. Y has been seeing her doctor regularly for 25 years having a thorough examination every six months. She has been a good wife, mother, never smoke or drank or indulged in any degenerative practice. "Suddenly" she has a heart attack.

After several weeks she recovers sufficiently to return home from the hospital. Three weeks later, in self-examination, she discovers a lump in her breast, whereupon a massive mastectomy is performed. Discharged after what is termed "successful" surgery, she has another heart attack, more hospitalization, followed by two years of semi-invalidism with many angina attacks.

Perhaps rightfully, she wonders "why?" Why hasn't she, in all these years, received some counsel from her physician in preventive methods?

Mr. Z goes to the hospital, a victim of drug overdose. He was taking a prescribed heart medication in the prescribed dosage.

He almost joins the "up to 140,000" who die each year in hospitals as a result of *drug overdose* under the "care" of licensed nurses and physicians, a fact reported by a spokesman for the American Medical Association (AMA) last year before a Senate committee. The committee also heard testimony that *80 percent* of the deaths were preventable.

Even more shocking was the article in the Washington Post on May 24, 1974, which cited evidence indicating that 30 to 40 percent of all hospital patients suffer from adverse drug reactions.

In Los Angeles County a study showed that, of 50,000 prescriptions written, 13 percent were in amounts in excess of the maximum amount needed for ordinary therapy. The computer revealed that one patient had been given 54 prescription drugs in 112 days!

I have before me a copy of the Merck Index of drugs and it is a formidable volume containing more than 10,000 drug formulations to choose from.

The thought occurs to me that no one person could conceivably know all there is to know about these drugs. Furthermore, as a graduate chemist, I wonder how it would be possible even to predict what certain combinations of drugs would do within the the human body.

And yet, I know of a patient who received 26 different drugs in a single day! The potential in this chemical madhouse would confound the most learned biochemist, to say nothing of the human body thus impregnated!

The indiscriminate giving of drugs and combinations of drugs by anyone is tragic in the light of the accepted fact that the biochemical knowledge at our disposal today is rudimentary. The stupidity, thus, of giving numerous drugs in unproven combinations is enormous.

Is it any wonder so many elderly and less elderly patients succumb in a hospital? Such a situation poses an interesting problem for the legal mind. Are such deaths murder or manslaughter?

When and at what point does ignorance cease and responsibility begin? Should the physician be required by law to inform his patients that a particular drug has been known to cause death in other patients under similar circumstances? Should the physician be limited only to those drugs that have been shown in double-blind tests on a sufficient number of patients to be instrumental in cure and not in death?

When one adds to the drugged victims the startling reports published recently in the San Diego Union that as much as 20 percent of the surgery performed in this country is done by incompetent doctors, the tragedy mounts in its implications as does the fear among patients.

Dr. Jean Mayer of Harvard cites figures from the World Health Organization which show that the U.S. has dropped from 11th place—just 25 years ago—to 37th place in health care standards among the civilized nations in the world. Roger Rappaport in his article, "It's Enough To Make You Sick," states that our vaunted medical know-how has "failed to keep our male life expectancy rate equal with that of nations that have considerably lower per capita incomes."

Other evidence shows we have more heart trouble, more cancer, more diabetes and other so-called degenerative diseases than in any other country where statistics are available. Cancer is the number one killer of our children. As a nation we cannot afford this tragedy.

The facts suggest that the medical fraternity may have failed in its sacred trust. It may be that this period in time will become known as the Dark Age of Medicine.

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